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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/510,208

10/05/2004

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35947-207175

4410

26694 7590 09/17/2007
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EXAMINER

HOLT, DAVID L

ART UNIT

PAPER NUMBER

2609

MAIL DATE

DELIVERY MODE

09/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/510,208

Applicant(s)

JOHANNESSON ET AL.

Examiner

David Holt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 02/04/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1- are rejected under 35 U.S.C. 102(e) as being anticipated by Spears et al. (US 7027193).

Claim 1, a sensor, has the following limitations, all taught by Spears:

- at least a first area and a second area of pixel elements arranged to absorb electromagnetic radiation from an object, the characteristics of which are to be imaged, and to convert the radiation absorbed into electrical charges (large sensor areas 100, 102, and 104, and small sensor area 106; Fig. 3)
- in which the first area has a first degree of resolution and the second area has a second degree of resolution different from the first degree of resolution (“An embodiment of a multiple resolution sensing apparatus;” column 3, lines 12-13)
- the first area is arranged to image one type of characteristics and the second area is arranged to image another type of characteristics (“The first array also is operative to generate color information corresponding to an image,” while “the second array is

operative to generate luminance information corresponding to the image;" column 3, lines 16-18 and 22-24)

Claim 2 adds the following limitation, taught by Spears:

- the first area is arranged to image three-dimensional characteristics of the object and that the second area is arranged to image two-dimensional characteristics of the object ("The first array also is operative to generate color information corresponding to an image," while "the second array is operative to generate luminance information corresponding to the image;" column 3, lines 16-18 and 22-24. The first array, therefore, operates in three-dimensional color space and the second array operates in two-dimensional luminance space.)

Claim 3 adds the following limitation, taught by Spears:

- at least one of the two areas is provided in its entirety or partially with color filters in order to image the object in color ("The first array also is operative to generate color information corresponding to an image;" column 3, lines 16-18. Illustrated in Fig. 3)

Claim 4 adds the following limitation, taught by Spears:

- the first area is designed as a matrix having N rows and M columns, that the second area is designed as a matrix having X rows and Y columns and that Y is b multiplied by M columns, where b is an integer greater than zero ("the sensor areas in rows 10, 12 and 14 are drawn as approximately 7 units wide by 8 units high, and the sensor areas in double rows 20, 22 and 24 are drawn as approximately 3 units wide by 4 units high;" column 5, lines 14-17. Here, M is 4 and Y is 8, thus b is 2.)

Claim 6 adds the following limitation, taught by Spears:

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- at least one of the areas is provided with filters for different wavelengths in order to minimize crosstalk (“double row 106 may have a filter that suppresses infrared light;” column 4, lines 32-33)

Claim 7 adds the following limitation, taught by Spears:

- the first area and the second area are arranged parallel in a transverse direction as one integral unit (photosensitive element array 502, Fig. 5)

Claim 8 adds the following limitation, taught by Spears:

- the first area and the second area are arranged parallel in a transverse direction as two separate units (large sensor area 200, 202, and 204, and small sensor area 206, 208, 210; Fig. 3. These areas are separated by a gap as shown in photosensitive element array 502, which can be interpreted to separate these two units)

Claim 9, a system for measuring character dependent parameters, has the following limitations, all taught by Spears:

- at least one light source which emits light towards the object (“...sequentially illuminate the row with different colored light sources, such as Red, Green, and blue Light Emitting Diodes;” column 10, lines 27-29)
- wherein the system further comprises a sensor according to claim 1, arranged to absorb electro-magnetic radiation from the object and to convert it into electrical charges (photosensitive element array 502 in scanner 500, Fig. 5)

Claim 10 adds the following limitation, taught by Spears:

- the system also comprises an output register arranged to read out the charges received in the sensor (First coupler 538 acts as an output register, Fig. 5)

Claim 11 adds the following limitation, taught by Spears:

- the system also comprises at least two output registers arranged to read out the charges received in the sensor ("...one system may employ a transfer gate to transfer the charge off of the photosensitive element into a shift register which collects the charges;" column 9, lines 33-35)

Claim 12 adds the following limitation, taught by Spears:

- the first area and the second area of the sensor are each read out on their own output register ("Such an amplifier which collects charges from a shift register is intended to be equivalent to the first amplifier 602 residing in the first coupler 538;" column 9, lines 37-39. Therefore, each row would have a shift register, and, thus, each area would have its own set of shift registers.)

Claim 13 adds the following limitation, taught by Spears:

- if the second area of the sensor is provided with color filters, color picked up has its own output register ("The first array also is operative to generate color information corresponding to an image;" column 3, lines 16-18. Illustrated in Fig. 3. Since this area's function is to collect color information and it has a set of shift registers, color has its own set of shift registers.)

Claim 14 adds the following limitation, taught by Spears:

- the system further comprises an A/D converter arranged to convert the electrical charges from an analog to a digital format and that the output register is a digital output register (analog/digital conversion unit 506, Fig. 5. This conversion unit feeds

into a memory system 528 that temporarily stores information for processing in a digital format. This temporary storage is equivalent to an additional output buffer.)

Claim 15 adds the following limitation, taught by Spears:

- the system also comprises an image/signal processing unit arranged to analyze the electrical charges (image processing system 508, Fig. 5)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spears et al. (US 7027193), in view of Shimamoto et al. (US 6005617).

Claim 5 adds the following limitation, not taught by Spears:

- time delay integration is used on the second area

Shimamoto teaches a subscanning system in which a narrow imaging device subscans the imaging plane of the lens system achieving TDI operation. This subscanning system could be applied to the image sensor taught by Spears. It is, in fact, specifically disclosed that Spears' sensor applies to "line arrays commonly used for optical image scanners." (column 1, line 21-22)

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the sensor taught by Spears with the subscanning system taught by Shimamoto, because the combination would have "an exposure time

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of less than one of several tenths of a second using a sensor chip that is sufficiently smaller than that of an area sensor." (column 1, lines 64-66)


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Holt whose telephone number is (571) 270-3227. The examiner can normally be reached on Monday - Friday, 7:30 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Ho can be reached on (571) 272-7365. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLH 08/31/2007


TUAN HO
PRIMARY EXAMINER